

REMARKS

New Claims 7-22 Included

New Drawing FIG.4 Included

FIG. 4 Relates To New Claims 14-20.

AMENDMENT

Version with markings to show changes made

FRICTION FREE GRAND PIANO ACTION

FIELD OF THE INVENTION

The present invention relates to grand pianos affected by excessive friction between the knuckle dependent from the shank carrying the piano hammer and the lifting surface of the jack lifting the knuckle.

BACKGROUND OF THE INVENTION

Conventional grand pianos are plagued by excessive friction between the knuckle and the lifting surface of the jack causing noise requiring frequent regulation with lubricant being applied to the knuckle and the lifting surface of the jack to reduce the excessive friction. Friction is caused by gravity of the hammer assembly, and made excessive by the jack spring being in a fixed constant tension exerting pressure upon the jack and the wippen lever.

SUMMARY OF THE INVENTION

In the present invention the jack spring is relocated making it possible to disable the jack spring during disengagement of the jack from the knuckle, thereby eliminating the excessive friction caused by the fixed constant tension of the jack spring exerting pressure upon the jack and the wippen lever.

PATENTS RELATING TO THE PROBLEM OF EXCESSIVE FRICTION

Finholm #4,774,868

Steinway #5,511,454 - #5,911,167

Baldwin #6,232,537.

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DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG.2 shows the arm 13A of the jack 13 being supported by the spiral spring 31 dependent from the regulating screw 32 carried by the flange 25; the regulating screw regulates the spiral spring to an appropriate tension, a higher tension would cause the jack to rise; the upward movement of the jack along with the spiral spring causing the spiral spring to be shortened effecting the spiral spring inert, disabled, causing the jack to escape from the knuckle 12 easily by a very light piano key 19 effected by absence of the traditional excessive friction between the knuckle 12, and the lifting surface of the jack 13, when the arm 13A of the jack 13 hits the escapement let off button 29.

FIG.3 shows the arm 13A carrying a regulating button 33 resting on a spring 34 carried by a rail 35, the upward movement of the arm 13A effecting the spring 34 carried by the rail 35, to rise in contact with the regulating button 33, effecting the spring 34 inert, disabled, causing the jack to escape from the knuckle without the traditional excessive friction, when the arm of said jack hits the escapement let off button.

FIG.4 Shows the end of the spiral spring 31
being attached to the end of the repetition lever 20,
the other end of the spiral spring 31 being attached
to the arm 13A of the jack 13.

7 The grand piano action according to claim 1 wherein said arm of said jack including said elastic means connected to said flange being a band, said arm of said jack being inside of said band.

8 The grand piano action according to claim 2 wherein said elastic means depending from said regulating screw carried by said flange being a band depending from a wire being in a hole along said regulating screw, the end of said wire being bent over said regulating screw, the arm of the jack being inside of said band.

9 The grand piano action according to claim 4 wherein said first end of said convoluted spring means in said hole along said regulating screw extending along said hole being straight.

10 The grand piano action according to claim 4 wherein said convoluted spring means being of a substantially light gauge.

11 The grand piano action according to claim 8 wherein said band being made of rubber.

12 The grand piano action according to claim 8 wherein said band being made of resilient plastic.

13 The grand piano action according to claim 5 wherein said spring means carried by said rail being in a groove under said arm of said jack supporting said jack.

14 The grand piano action according to claim 1 wherein said arm of said jack including said elastic means being connected to the repetition lever supporting said knuckle carried by said hammer shank.

15 The grand piano action according to claim 3 wherein said arm of said jack including said convoluted spring means being connected to the repetition lever supporting said knuckle carried by said hammer shank.

16 The grand piano action according to claim 15 wherein said arm of said jack including a regulating screw, said convoluted spring means connected to said repetition lever connecting to said regulating screw.

17 The grand piano action according to claim 14 wherein said elastic means being a band stretched about the end of said repetition lever and about said arm of said jack.

18 The grand piano action according to claim 17 wherein said band being attached to said repetition lever, said arm of said jack being inside of said band.

19 The grand piano action according to claim 17 wherein said band being made of rubber.

20 The grand piano action according to claim 17 wherein said band being made of resilient plastic.

21 In a traditional grand piano action wherein a resilient means dependent from above supporting the arm of the jack to eliminate the excessive friction at the jack and knuckle interface.

22 In a traditional grand piano action wherein a resilient means below the arm of the jack positioned on a stationary member supporting said arm of said jack to eliminate the excessive friction at the jack and knuckle interface.